

Academic and Government Research

Round 3

8/31/2006

Item Designation	Title/Summary	Author	School/Area	Date
2-Cycle Engine Oils	Developing industrial uses for animal fats and vegetable oils, including biodiesel and lubricants	Industrial Agricultural Products Center	University of Nebraska	
	Thermally Stable Vegetable Oil based Lubricants via Reductive Ozonolysis	Vickray, R.	Michigan State University	2004
	Industrial Uses of Soyoil: A Market Analysis	Callum, J.	University of Nebraska	1994
	100% Vegetable-based Motor Oil Protects Engines and Reduces Emissions	Kuzel, F.	DOE Energy Efficiency and Renewable Energy	2004
	Oilseed Lubricants Offer Environmentally Friendly Benefits in a Home-Grown Product		Biomass Research and Development Initiative	2003
	Improved Chemicals and Plastics from Oilseeds		Office of Industrial Technologies Industries of the Future--Agriculture Program	2002
	Soy-Based 2-Cycle Engine Oils		Office of Industrial Technologies Industries of the Future--Agriculture Program	2001
		Ag-Based Industrial Lubricants Research Program	University of Northern Iowa	
		Mernick, K.	National Center for Agricultural Utilization Research	
	The Use of Soybean Oil in Biobased Products	Erhan, S.	USDA ARS	2006
	Research in the area of: Chemical Systems for Soybean Oil Conversion to Industrial Products		USDA ARS	
	Friction and Wear Behavior of Biobased Lubricant Additives	Sharma, B., J. Perez, and S. Erhan	USDA ARS	2006
	Chemical Systems for Soybean Oil Conversion to Industrial Products		USDA ARS	
	Industrial Products from New Crops		USDA ARS	
	Changes in Particulate Composition and Morphology When Using Vegetable Oil Lubricant in a Low Heat Rejection Engine	Weller, D.E., W.H. Swain, H. Hess, A.L. Boehman, and J.M. Perez	Purdue University	1999
	Use of Vegetable Oil Lubricant in a Low Heat Rejection Engine to Reduce Particulate Emissions	Boehman, A.L., W.H. Swain, D.E. Weller, and J.M. Perez	Purdue University	1998
	Biobased Industrial Fluids and Lubricants	Erhan, S.V. and J.M. Perez	Environmental Health Perspectives, Vol. 111	2002
	Canola-based motor oils	Johnson, D.L., B. Rhodes, and R. Allen	Colorado State University	2002

	Bio 25/30: Canola-based motor oil roars onto commercial markets	Johnson, D.L., B. Rhodes, and R. Allen	Colorado State University	1998
	Emissions from snowmobile engines using bio-based fuels and lubricants	White, J.J. and J.N. Carroll	Department of Emissions Research Automotive Products and Research Division	1998
Biodegradable Films	Development of polylactic acid (PLA) based blends and their nanocomposites for packaging applications	Chidambarakuma, M.	Michigan State University	2005
	PLA/nanoclay cast film composites using various polymer-clay concentrates	Lewitus, D.	University of Massachusetts	2004
	Structural mechanisms as revealed by real time mechano optical behavior of polylactic acid films in uni and biaxial deformation and heat setting processes	Ou, X.	University of Akron	2004
	Reduction of spoilage and pathogenic bacteria on beef products by applications of antimicrobial agents	Lim, K.	University of Missouri	2003
	Investigation of the processing and characterization of blown-film nanocomposites consisting of poly(lactic acid) and organically modified montmorillonite clay	Thellen, C.T.	University of Massachusetts	2003
	Analysis: Mechanical properties of biodegradable films made from blends of PLA and polybutylene succinate adipated random copolymer by blown film extrusion	Laverde, G.V.	University of Massachusetts	1997
	The preparation and study of a drug-containing, polymeric system which displays enzyme-mediated, polymeric degradation	Ashley, S.L.	University of Texas	
	Reactive extrusion process produces biodegradable films and injection molded products based on soy protein polyester	Narayan, R.	Michigan State University	2000
	ASTM standards help define and grow a new biodegradable plastics industry	Narayan, R. and C. Pettigrew	Michigan State University	1999
	A method of preparing biodegradable modified-starch moldable products and films	Narayan, R., S. Bloembergen, and A. Lathia	Michigan State University	1999
	Biodegradable moldable products and films comprising starches esters and polyesters	Bloembergen, S. and R. Narayan	Michigan State University	1995
	Commercialization technology. "A case study of starch based biodegradable plastics" In paradigm for successful utilization of renewable resources	Narayan, R.	Michigan State University	1998
	Biodegradable plastics opportunities for innovation	Narayan, R.	Michigan State University	1993
	Biodegradability of polylactide film in simulated composting environments	Snook, J.B.	Purdue University	1994
	Maleation of polylactide (PLA) by reactive extrusion	Carlson, D., P. Dubois, L. Nie, and R. Narayan	Michigan State University	1999
	Free radical branching of polylactide by reactive extrusion	Carlson, D., P. Dubois, and R. Narayan	Michigan State University	1998

Introduction to properties, engineering, and prospects of polylactide polymers	Witzke, D.	Purdue University	1997
Rational and design for biodegradable plastics	Narayan, R.	Michigan State University	2003
Modification of PLA via reactive extrusion	Carlson, D.	Purdue University	1995
Laboratory Composting of PLA Industrial Agricultural Products Center	Weber, R.	University of Nebraska	
Effects of storage time on properties of soybean protein-based plastics	Mo, X. and X.S. Sun	Kansas State University	2002
Plastic performance of soybean protein components	Sun, X.S, H.-R. Kim, and X. Mo	Kansas State University	1999
Industrial uses for proteins found in soybeans and wheat including films, coatings, and adhesives	Industrial Agricultural Products Center	University of Nebraska	
Polylactide Stereochemistry: Effect on Enzymatic Degradability	Reeve, M.S., S. McCarthy, M.J. Downy, and R.A. Gross	University of Massachusetts	1994
Development of corn starch and protein for biodegradable plastics	Center for Crops Utilization Research	Iowa State University	
PLA/nanoclay cast film composites using various polymer-clay concentrates	Lewitus, D.	University of Massachusetts	2004
Design and development of a biodegradable polylactide reservoir for controlled, zero-order drug delivery	Jonnaladadda, S.	University of Nebraska	2000
An investigation of the biodegradable polymeric blends: Starch and poly(vinyl alcohol) (PVOH), poly(lactic acid) (PLA) and poly(vinyl alcohol-co-vinyl acetate) (VAVA), and poly(glycolic acid) (PGA) and PVOH	Wang, X.	University of Massachusetts	1994
Synthesis of biodegradable copolymers: Post-polymerization modification of poly(L-lactide-co-diallylglycolide)	Radano, C.P.	Michigan State University	2003
Plasticization of soy protein polymer by polyol-based plasticizers	Mo, X. and X.S. Sun	Kansas State University	2002
Biodegradable Moldable Products and Films Comprising Starches Esters and Polyesters, US Patent 5462983	Bloembergen, S. and R. Narayan	Michigan State University	1995
Biodegradable Multi-Component Polymeric Materials Based on Unmodified Starch-Like Polysaccharides, US Patent 5500465	Narayan, R.	Michigan State University	1996
Microfiber Reinforced Biodegradable Starch Ester Composites with Enhanced Shock Absorbance and Processability, US Patent 5728824	Narayan, R.	Michigan State University	1998
Rationale and Design for Biodegradable Plastics	Narayan, R.	Michigan State University	2003
Biodegradable compositions by reactive processing of aliphatic polyester/polysaccharide blends	Dubois, P. and R. Narayan	Macromolecular Symposia	2003

Drivers for biodegradable plastics & role of composting in waste management & sustainable agriculture	Narayan, R.	Bioprocessing of Solid Waste & Sludge, Vol 11 Issue 1	2001
Reactive Extrusion Process Produces Biodegradable Films & Injection Molded Products Based on Soy Protein-Polyester	Narayan, R.	Materials Research Society Bulletin	2000
Biodegradable Composites and Blends of Starch with poly(e-caprolactone)	Narayan, R. and M. Krishnan	American Chemical Society	1995
A Method of Preparing Biodegradable Modified-Starch Moldable Products and Films, U.S. Patent 5,869,647	Narayan, R., S. Bloembergen, and A. Lathia	Michigan State University	1999
Biodegradable Plastics	Narayan, R.	9th Global Environmental Technology Congress	1996
Impact of Governmental Policies, Regulations, and Standards Activities on an Emerging Biodegradable Plastics Industry	Narayan, R.	Michigan State University	1994
The Role of Biodegradable Materials in Solid Waste Management	Snook, J. and R. Narayan	Michigan State University	1994
Biodegradable Plastics in Opportunities for Innovation	Narayan, R.	Michigan State University	1993
Environmentally Degradable Plastics	Narayan, R.	Michigan State University	1990
Design of Environmentally Degradable Plastics	Narayan, R.	Michigan State University	1989
Environmentally Degradable Plastics	Narayan, R.	Michigan State University	1989
Preparation of Corn-based Plastics for Materials Applications	Narayan, R.	Michigan State University	1987
Biodegradability of Polylactide Film in Simulated Composting Environments	Snook, J.B.	Michigan State University	1994
Reactive Extrusion Processing of Cellulose esters for biobased and biodegradable plastics	Cheng, G.	Michigan State University	
Natural Fiber Reinforced Biodegradable Plastic COMPOSITES: Eco-friendly Bio-composites from Kenaf & Polyester amide Bioplastic	Hokens, D., L.T. Drzal, M. Misra, and A.K. Mohanty	Bio-Based Products and Bio-Composites Seminar at Michigan State University	2001
Starch Esters as Biodegradable Plastics: Effects of Ester Group Chain Length and Degree of Substitution on Anaerobic Biodegradation	Rivard, C., L. Moens, K. Roberts, J. Brigham, J., and S. Kelley	NREL: Enzyme and Microbial Technology. Vol. 17 1995	1995
NREL Researchers Zero In on Inexpensive Biodegradable Plastics		NREL	1995
Photobiological Conversion of Synthesis Gas into Biodegradable Plastics.	Maness, P.C. and P.F. Weaver	NREL: Fifteenth Symposium on Biotechnology for Fuels and Chemicals	1993
Biodegradable Plastics.	Rivard, C.	NREL publications: Journal of Environmental Health Vol. 53(4)	1990
Properties and microstructure of plasticized zein films		University of Illinois	1997

	Agricultural Wastes Make "Agro-plastics" Lighter and Stronger	Graef, J.	Energy Efficiency and Renewable Energy: Biomass Program Search	2004
	Biobased PLA Polymers Grow New Markets for American Corn Products		Biomass Research and Development Initiative	2003
	Biodegradable Performance Polymers from Switchgrass		Office of Industrial Technologies Industries of the Future-- Agriculture Program	2002
	Improved Chemicals and Plastics from Oilseeds		Office of Industrial Technologies Industries of the Future-- Agriculture Program	2002
	Utilization of Corn-Based Polymers		Office of Industrial Technologies Industries of the Future-- Agriculture Program	2001
	Innovation and Economics for Replacement of Fossil Fuel Derived Products	Ladisch, M.	Purdue University	2004
	Plasticulture practice for fresh market cantaloupe production	Bartolo, M.E. and F.C. Schweissing	Colorado State University	2003
	Poly lactides: Plastics from Corn	Dorgan, J.	Colorado School of Mines	2003
	Environmental assessment of bio-based polymers and natural fibers	Patel, M., C. Bastioli, L. Marini, and D.-G. Eduard Wurdinger	Utrecht University, Novamont, and Bavarian Institute of Applied Environmental Research and Technology	2003
	Absorption and Diffusion in Bio-based Polymer Films	Meisner, J.A., S. Ramaswamy, R. O'Connor, A.L. Smith, and R.A. Cairncross	Rexel University & University of Minnesota	
Carpet Cleaners	Reactive Distillation for the Biorefinery: Production of Organic Acid Esters	Asthana, N., A. Kolah, D.T. Vu, C.T. Lira, and D.J. Miller	Michigan State University	2005
	Factors Influencing the Kinetics of Lactic Acid Esterification: Ethyl Lactate by Reactive Distillation	Asthana, N., A. Kolah, D.T. Vu, C.T. Lira, and D.J. Miller	Michigan State University	2005
	Clean Solvents - Alternative Media for Chemical reactions and Processing	Abraham, M.A. and L. Moens	ACS Symposium Series 819	2001
	Life cycle assessment of a biobased process for producing 1, 3-propanediol	Ogletree, A.L.	Iowa State University	2004
	Bio Based Alternative Solvents: How Well Do They Work	Marshall, J. and H. Wilcox	University of Massachusetts	2003
	Improved Chemicals and Plastics from Oilseeds		Office of Industrial Technologies Industries of the Future-- Agriculture Program	2002

Carpets	1,3-Propanediol Made from Fermentation-Derived Malonic Acid		Office of Industrial Technologies Industries of the Future -- Agriculture Program	2001
	Utilization of Corn-Based Polymers		Office of Industrial Technologies Industries of the Future -- Agriculture Program	2001
	Poly lactides: Plastics from Corn	Dorgan, J.	Colorado School of Mines	2003
Cutlery	Environmentally degradable polyesters, poly(ester-amide)s and poly(ester-urethane)s	Stapert, H.R.	Universiteit Twente	1998
Dust Suppressants	Impacts of dust suppressant application in the quality of urban runoff in arid regions	Loreto, D.F.	University of Nevada	2002
Fixed Equipment Hydraulic Fluids	Developing industrial uses for animal fats and vegetable oils, including biodiesel and lubricants.	Industrial Agricultural Products Center	University of Nebraska	
	Thermally Stable Vegetable Oil based Lubricants via Reductive Ozonolysis	Vickray, R.	Michigan State University	2004
		Ag-Based Industrial Lubricants Research Program	University of Northern Iowa	
		Mernick, K.	National Center for Agricultural Utilization Research	
	Industrial Uses of Soyoil: A Market Analysis	Industrial Agricultural Products Center Janice L. Callum Marketing Research Assistant	University of Nebraska	1994
	Improved Chemicals and Plastics from Oilseeds		Office of Industrial Technologies Industries of the Future-- Agriculture Program	2002
	The Use of Soybean Oil in Biobased Products	Erhan, S.	USDA ARS	2006
	Synthesis and Characterization of Biobased Lubricant Additives	Sharma, B., J.M. Perez, and S. Erhan	Penn State University and USDA ARS	2006
	Friction Behavior of Some Seed Oils: Bio-Based Lubricant Applications	Adhvarya, A., G. Biresaw, B. Sharma, and S. Erhan	Penn State University and USDA ARS	2006
	Vegetable Oil Based Biodegradable Lubricants	Erhan, S. and B. Sharma	Penn State University and USDA ARS	2006
	Use of Vegetable Oils in Functional Fluids	Erhan, S., A. Adhvaryu, and Z. Liu	Penn State University and USDA ARS	2002
	Soybean Oil-Based Base Stocks	Erhan, S.	USDA ARS	2001
	Chemical Systems for Soybean Oil Conversion to Industrial Products		USDA ARS	
	Industrial Products from New Crops		USDA ARS	

	New and Expanded Uses of Oilseed Products and By-Products	Wan, P., M. Dowd, I. Lima, M. Kuk, and O. Dailey	USDA ARS	
	New Lubricants from vegetable oil: cyclic acetals of methyl 9,10-dihydroxystearate	Filley, J.	Colorado School of Mines	2004
	Development of biobased synthetic fluid: application of molecular modeling to structure-physical property relationship	Adhvaryu, A., B.K. Sharma, H.S. Hwang, S.Z. Erhan, and J.M. Perez	American Chemical Society	2005
Food Grade Greases	Food-Grade Hydraulic Fluid	Ag-Based Industrial Lubricants Research Program	University of Northern Iowa	
	Food Grade Grease	Ag-Based Industrial Lubricants Research Program	University of Northern Iowa	
Glass Cleaners	Reactive Distillation for the Biorefinery: Production of Organic Acid Esters	Asthana, N., A. Kolah, D.T. Vu, C.T. Lira, and D.J. Miller	Michigan State University	2005
	Factors Influencing the Kinetics of Lactic Acid Esterification: Ethyl Lactate by Reactive Distillation	Asthana, N.; Kolah, A.; Vu, D.T.; Lira, C.T.; Miller, D.J.	Michigan State University	2005
	Bio Based Alternative Solvents: How Well Do They Work	Marshall, J. and H. Wilcox	University of Massachusetts	2003
	Life cycle assessment of a biobased process for producing 1, 3-propanediol	Ogletree, A.L.	Iowa State University	2004
	Clean Solvents - Alternative Media for Chemical reactions and Processing	Abraham, M.A. and L. Moens	ACS Symposium Series 819	2001
	Improved Chemicals and Plastics from Oilseeds		Office of Industrial Technologies Industries of the Future--Agriculture Program	2002
Multipurpose Greases	Industrial uses for animal fats and vegetable oils, including biodiesel and lubricants	Industrial Agricultural Products Center	University of Nebraska	
	Performances and Characteristics of Soybean-based Greases Thickened with Clay, Al Complex and Li Complex		National Lubricating Grease Institute	
	Spilling the Beans about Castor Oil and its Derivatives		National Lubricating Grease Institute	
	Field Results of Soybean Based Greases Developed by the University of Northern Iowa's Ag-Based Industrial Lubricants Research Program	Honary, L.	University of Northern Iowa	
		Ag-Based Industrial Lubricants Research Program	University of Northern Iowa	

	Improved Chemicals and Plastics from Oilseeds		Office of Industrial Technologies Industries of the Future-- Agriculture Program	2002
	Vegetable Oil Based Biodegradable Lubricants for Industrial Applications	Erhan, S. and B. Sharma	Penn State University and USDA ARS	2006
	Use of Soybean Oil in Functional Fluids	Erhan, S., A. Adhvaryu, and Z. Liu	Penn State University and USDA ARS	2002
	Friction Properties of Vegetable Oils	Biresaw, G., A. Adhvaryu, and S. Erhan	Penn State University and USDA ARS	2003
	New Uses for Vegetable Oil	Erhan, S.	USDA ARS	2003
	Chemical Modification of Vegetable Oils for Lubricant Basestocks	Erhan, S., A. Adhvaryu, and Z. Liu	Penn State University and USDA ARS	2003
	Thermal and Tribochemical Properties of Bio-Based Grease: Structure and Composition Relationships	Sharma, B., A. Adhvaryu, and S. Erhan	Penn State University and USDA ARS	2004
	Tribochemical Behavior of Bio-Fluids As Lubricants and Industrial Oils	Sharma, B., A. Adhvaryu, and S. Erhan	Penn State University and USDA ARS	2004
	Seed Oil Based Grease for Industrial Applications	Sharma, B., A. Adhvaryu, and S. Erhan	Penn State University and USDA ARS	2004
	Chemical Modification of Vegetable Oils: Bio-Based Lubricants and Tribological Properties	Erhan, S.	USDA ARS	2004
	Fatty Acids and Antioxidant Effects on Grease Microstructures	Adhvaryu, A., C. Sung, and S. Erhan	Penn State University, University of Massachusetts, and USDA ARS	2005
	Biobased Lubricants for Industrial Applications	Sharma, B., A. Adhvaryu, and S. Erhan	Penn State University and USDA ARS	2005
	The Use of Vegetable Oils as Lubricants and Hydraulic Fluids	Erhan, S.	USDA ARS	2005
	Development of biobased synthetic fluid: application of molecular modeling to structure-physical property relationship	Adhvaryu, A., B.K. Sharma, H.S. Hwang, S.Z. Erhan, and J. Perez	American Chemical Society	2005
Lip Care Balm	No results			
Railroad Greases	Rail Curve Grease	Ag-Based Industrial Lubricants Research Program	University of Northern Iowa	
	Development of a Soy-biobased Solid Stick Lubricant	Honary, L.	University of Northern Iowa	
	Case Study: Approval of Soybean Oil-Based Rail Curve Grease by a U.S. Class I Railroad	Honary, L.	University of Northern Iowa	
	A Report on Performance Properties of an All-Season Soybean Oil-Base Rail Curve Grease	Rover, M.	University of Northern Iowa	
	Field Results of Soybean Based Greases Developed by the University of Northern Iowa's Ag-Based Industrial Lubricants Research Program	Honary, L.	University of Northern Iowa	

	Vegetable Oil-Based Lubricants: Improvement in Oxidation and Low Temperature Stability	Sharma, B., A. Adhvaryu, and S. Erhan	Penn State University and USDA ARS	2005
	The Effects of Microwave Irradiation on the Structure, Viscosity, Thermal Properties and Lubricity of Soybean Oil	Biswas, A., A. Adhvaryu, D. Stevenson, B. Sharma, J. Willett, and S. Erhan	USDA ARS and Penn State University	2006
	Chemical Modification of Vegetable Oils for Lubricant Applications	Sharma, B., A. Adhvaryu, Z. Liu, and S. Erhan	Penn State University and USDA ARS	2006
	Biobased Lubricants: Improvement in Oxidation and Low Temperature Stability	Erhan, S., B. Sharma, and A. Adhvaryu	Penn State University and USDA ARS	2005
	Biodegradable Industrial Lubricants	Erhan, S. and B. Sharma	Penn State University and USDA ARS	2005
	Environmentally Friendly Biobased Lubricants	Erhan, S. and B. Sharma	Penn State University and USDA ARS	2005
	Current Developments of Biodegradable Grease	Adhvaryu, A., B. Sharma, and S. Erhan	Penn State University and USDA ARS	2005
	Biobased Lubricants for Industrial Applications	Adhvaryu, A., B. Sharma, and S. Erhan	Penn State University and USDA ARS	2005
	Vegetable Oil-Based Lubricants: Improvement in Oxidation and Low Temperature Stability	Adhvaryu, A., B. Sharma, and S. Erhan	Penn State University and USDA ARS	2005
	Compositional Effects of Biobased Greases on Its Oxidative Stability	Sharma, B., A. Adhvaryu, J. Perez, and S. Erhan	Penn State University and USDA ARS	2004
	Development of Bio-Based Synthetic Fluids: Application of Molecular Modeling	Adhvaryu, A., B. Sharma, and S. Erhan	Penn State University and USDA ARS	2004
Truck Greases	Fifth Wheel Grease	Ag-Based Industrial Lubricants Research Program	University of Northern Iowa	
	Field Results of Soybean Based Greases Developed by the University of Northern Iowa's Ag-Based Industrial Lubricants Research Program	Honary, L.	University of Northern Iowa	
		Mernick, K.	National Center for Agricultural Utilization Research	
	The Effects of Microwave Irradiation on the Structure, Viscosity, Thermal Properties and Lubricity of Soybean Oil	Biswas, A., A. Adhvaryu, D. Stevenson, B. Sharma, J. Willett, and S. Erhan	USDA ARS and Penn State University	2006
	Compositional Effects of Biobased Greases on Its Oxidative Stability	Sharma, B., A. Adhvaryu, J. Perez, and S. Erhan	Penn State University and USDA ARS	2004